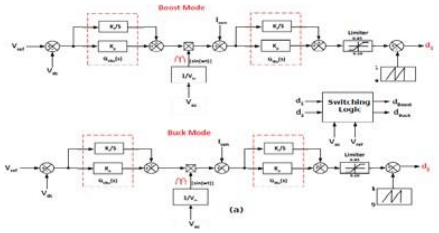
Novel On-Board Battery Charger with Wide-Output Voltage



INVENTORS: Dr. Sheldon Williamson, Jaya Ammanamanchi Venkata, Lalit Patnaik, Najath Abdul Azeez

OVERVIEW: A novel universal charging device that overcomes traditional limits based on a charger'soutput voltage.

PATENT PROTECTION: US20200039375 (priority Aug 3rd, 2018)

TARGET MARKETS: EVs, Batteries, Li-Ion, Battery Charger

BACKGROUND

One of the target markets for the technology would be automotive. The battery Charger market for the EV segment is projected to gain more than 300 BPS between 2017 and 2027 and is expected to retain its dominance throughout the forecast period. This segment is projected to reach a market value of more than US$ 1,900 Mn by 2027 end, expanding at a CAGR of 7.5%. The electric car battery chargers segment is likely to create a total incremental opportunity of US$ 984.8 Mn between 2017 and 2027. In terms of value, the electric car battery chargers segment is projected to continue its dominance over the period forecast. This is primarily due to the growth in demand by consumers for electric cars, owing to stringent government regulations and environment-friendly operations of electric cars.

TECHNOLOGY OVERVIEW

The research group led by Dr. Sheldon Williamson has developed a novel method and design of a universal charger using variable DC link voltage at the PFC converter to address the wide range of battery pack voltages with a DC-DC converter. The novel system employs a first-stage buck and boosts Power Factor Correction (PFC) converter and a second-stage DC-DC converter. The buck and boost PFC converter can generate variable intermediate DC-link voltages which allow the on-board battery charger to efficiently generate a wider range of output voltages. This system enables the end user to charge any device independent of the voltage (i.e., an EV or similar device is no longer limited by an individual charger's output voltage range: 36-48V, 72-100V, or 200-450V) thus enabling universal charging.

BUSINESS OPPORTUNITY

Ontario Tech University looks to work with companies in a way that helps develop a relationship that is tailored to their interests. Thus, we are happy to explore collaborations, licenses, options, assignments, etc. It is the belief that only through enabling the company to utilize its business model will Ontario Tech technology be able to make an impact within the marketplace.

About Ontario Tech University

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